Are Mutual Funds Sold or Bought? Evidence from the Indian Mutual Funds Market*

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Abstract

We argue that investor sophistication and incentives for selling mutual funds determine market for mutual funds. Lower investor sophistication coupled with high incentives for selling mutual funds facilitate sellers market. On the other hand, discouraging unsophisticated investor participation by controlling excessive selling effort can shift sellers market to buyers market. A new regulation by the Indian financial markets regulator-SEBI, of banning deduction of entry load fee at source, attempts to empower buyers and move Indian mutual funds market from sellers to buyers market.We develop several related hypotheses that link the regulation with fund flows, fund expenses and fund performance. By using a sample of 269 Indian balanced equity mutual funds for the period August 2005 to June 2010, we find that, in post-regulation period, fund flows decrease and the average market quality improves in terms of pricing and quality of service. Hence, our results support that conjecture that investor sophistication and incentives for selling efforts determine whether mutual funds are sold or bought.

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Keywords: Indian mutual funds industry, SEBI, Entry Loads, Fund Flows.

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1 Introduction

Entry load is a onetime upfront fee levied by mutual fund Asset Management Companies (AMCs) to compensate the intermediary or AMC's own sales and advisory effort to reach investors. Typically, entry load is deducted at source from the invested amount. For example, if an investor invests $100,000 in a mutual fund that charges 2.25% entry load (this rate used to be the standard in the Indian market) then she is effectively investing $97,750 and hence if the mutual fund generates 15% return then she would receive $9,102 *less* due to the entry load.

Although, on the face of it, entry load looks like a rip-off for investors, mutual fund industry values the service provided by sellers of mutual fund schemes due to the value of personal effort in selling (relatively complex) financial products. Using US mutual funds data, Sirri and Tufano (1998, page 1612) empirically support this argument: *decreasing entry loads may reduce fund flows*. They argue that marketing and selling efforts reduce search costs for investors and hence such service has value while dealing with less sophisticated investors. In an idealistic world, mutual fund selling effort would improve channelizing investors' (in particular, unsophisticated investors) savings into effective allocation of capital in the economy at large. However, on the same note, ineffective service (in the form of misleading information by mutual funds or financial advisors) coupled with poor financial literacy of the investors can be a dangerous combination. In particular, the opaque nature of entry loads (deducting at soruce from the invested amount) may encourage mis-representation by the financial advisors for their short term gains (commissions). On the other hand,if commissions were made transparent, by charging outside the investing amount, and if financial advisors have to negotiate for their commissions (by giving proper justification to their value addition to investors) then the mis-representation problem can be relatively minimized. In the process, such a change can move the market for mutual funds from being a sellers market (where financial advisors sell funds for their own interest) to a buyers market (where investors buy funds for their own interest). Until recently, to our knowledge, regulators across countries did not feel the need to take any critical view (in the form of a regulation) on the potential dangers of relatively opaque nature of entry loads.

Effective from August 1st 2009 Securities Exchange Board of India (SEBI), the Indian securities markets regulator, banned entry loads charged by all AMCs that operate in India (for both existing and proposed mutual fund schemes). SEBI asked sellers of mutual fund schemes collect commissions directly from investors. In effect, by moving from opaque to transparent commission mechanism, SEBI made the job of financial product sellers more responsible. SEBI's

observations on this issue were[1]: *"The present system of payment of commission has led to a lack of control by the investor over the quality of service vis-a-vis the commission being borne by him. This has led to a situation where advices rendered to the investors could be influenced by factors other than investor's interest. There appears to be a need to empower the investor in deciding the commission paid to the distributors and also to ensure transparency in commissions paid for mutual fund products."* In other words, through this regulation, SEBI aims to shift the control of investing in mutual funds from sellers to buyers. This is warranted as SEBI believes that financial advisors' decision is influenced by factors other than investor's interest.

The regulators effort to improve transparency in the Indian mutual funds market provides a natural laboratory to understand how mutual fund investment happens in two different market conditions and whether an exogenous change that affects selling effort can achieve desired results. This regulation is very significant in the Indian financial services industry that is dominated by more than 1 million agents selling financial products[2] in an relatively very low investor sophistication environment. At the same time, the general implication of the role of transparency on market welfare makes this study applicable to not only Indian market but also to other markets. Khorana et. al., (2009) note that transparency will ultimately benefit the whole mutual fund industry. Some plausible questions that can be addressed are: 1. Are, on average, Indian investors unsophisticated? 2. Would banning entry load reduces fund flows? Would funds compete better, in the post-entry load transparency regime, in terms of their pricing and quality of their service?

Using a sample of 269 mutual fund schemes, for the period August 2005 to June 2010, that belong to 36 AMCs, we analysed the relationship between fund flows, entry loads, entry load regimes, fund fees, and fund performance. Our main findings are as follows. (1) Unlike in the US mutual fund market (as reported by Sirri and Tufano, 1998), fund flows in India are not driven by fund recent performance. This indicates that Indian investors are not sensitive to fund recent performance. This partially supports SEBI's contention that mutual funds in India are sold and not bought. (2) We find that fund flows growth rate halts in the post-entry load transparency regime and at the same time fund flows sensitivity to performance improves significantly. This implies a shift from sellers to buyers market. (3) Further, in the post-entry load transparency regime, on average, fund fees remains constant and fund performance improves significantly. This indicates that, in the post-entry load transparency regime, mutual funds have become more competitive in terms of their pricing (expenses) and service delivery (performance). These results lead us to conclude that market for mutual funds is determined by the degree of investor sophistication and the incentives for selling mutual funds. Also, SEBI's aim to shift the

[1]Source: Hindu Business Line dated 27.06.2009. For more details on this regulation, refer to SEBI circular: SEBI/IMD/CIR No. 4/168230/09 dated 30th June 2009 from www.sebi.gov.in

[2]As stated by Mr. A.P. Kurian, chairman of the Association of Mutual Funds in India, an industry group, in the Indian edition of Wall Street Journal (Mint) dated 25.02.2010.

Indian mutual funds market from sellers to buyers market yielded desired result.

Rest of the paper is organized in five sections. Section two that follows this section briefly introduces the institutional setting of the Indian mutual fund industry. In Section three we develop testable hypotheses and also introduce econometric models for testing stated hypotheses. Section four describes the data used in this study. Section five reports and provides discussion on the empirical results. Concluding remarks are drawn in Section six.

2 Indian Mutual Funds Industry[3]

Indian mutual fund industry started with Indian Government's initiation through the formation of a Government owned AMC, the Unit Trust of India (UTI) in the year 1963. UTI was the only AMC until 1987 when the Indian Government allowed Government controlled financial institutions to set up AMCs. It was only after the economic liberalization in early 1990s, private players entered into Indian mutual fund industry. As of year 2010, 40 AMCs operate in the Indian market (including, government controlled, domestic private and foreign AMCs). This indicates that Indian mutual funds market is in its early stage of development.

The Assets under Management(AUM) of Indian mutual funds constitutes only 0.32 percent of the global mutual fund assets of US $18.97 trillion as of 2008 (ICI database). However, over the 10-year period from 1999 to 2009 encompassing varied economic cycles, the industry grew at 22 percent and over the last 6 years India has been amongst the fastest growing markets for mutual funds. During this period the Indian mutual fund industry grew at 29 percent compounded annual growth rate (CAGR) as against the global average of 4 percent. This indicates that India is picking up slack to emerge as one of the significant mutual fund markets in the world. However, such an excessive growth may also reflect excessive selling effort by the mutual funds to exploit the gains of improved incomes levels in the liberalized Indian economy.

It is important to note that household financial savings investment in mutual funds in India comprised 7.7 percent of the gross household financial savings in the year 2008 as against 55 percent of their savings in fixed deposits with banks, 18 percent in insurance and 10 percent in currency. In contrast, an average developed economy would have, on average, more than 20% financial savings in mutual funds. Although this shows that it is challenging for AMCs not only to mobilize funds but also to convert fixed deposit savings into mutual fund investments, these statistics implies unexplored fortunes for the AMCs. A recent survey jointly conducted by Confederation of Indian Industry and KPMG (CII- KPMG survey May 2009) found that the biggest challenge involved in channelizing household savings to mutual funds is low customer

[3]The sources of statistics in Section 2, if not quoted in the text, are obtained mainly from two sources. Historical statistics are from AMFI website and AMFI publications. Investor and Industry based Survey statistics are from Confederation of Indian Industry- KPMG May 2009 survey.

awareness levels coupled with low financial literacy. The CII-KPMG survey also found that one of the main reasons for households not to invest in mutual funds is their perception on the complexity of the products and the market. In summary, the house hold investment statistics and the survey based results highlight two important dimensions of Indian financial services industry: Untapped savings coupled with lower investor sophistication. This kind of landscape can be a feast for financial advisors and AMCs: the higher the selling effort the higher are fund inflows.

2.1 Distribution Channels and Fees in the Indian Mutual Funds Industry

The distributors in the Indian Mutual funds industry can be broadly classified into three groups namely, Independent Financial Advisors (IFAs) or individual distributors, corporate employees (sales team) and corporate firms (mainly banks, financial services firms, and postal department). As per the Indian mutual funds association- AMFI, IFAs mobilized 57 percent of the total AUM raised as of year 2007. This was followed by banks and other corporate brokerage houses. There are 92,499 registered IFAs under AMFI, however there are approximately 2.5 million insurance agents in India who also sell mutual fund products.

In a market like the US mutual funds market, financial advisors are professionals who help investors define their investment goals, select suitable funds based on risk appetite, and provide ongoing advice and service. In other words, they also provide significant after sales service and maintain ongoing relationship with the investors. These financial advisors are compensated for their services through 12b-1 fee. In addition, no-load funds are sold directly to investors or are sold to investors through financial advisors. The financial advisors charge investors separately for the investment advice and service provided, thereby providing flexibility to the investor, based on the level of advice and service sought. Investors who opt not to use a financial advisor or those who pay the financial advisor directly for services did not render, purchase no-load funds, which have neither front- nor back-end loads and have either low or no 12b-1 fees. This mechanism works when investors are relatively more sophisticated, proactive and understand the financial implications. At the same time, advisors in such markets are properly trained and well informed to provide value added service to investors.

In the Indian mutual funds market, most of the advisors are not professionally trained and they do not provide comprehensive financial service[4]. There are no industry standards or well established professional code of conduct that are strictly followed. There are no clear cut penalties for the misconduct of the financial advisors. Hence, the chances of free riding and manipulation can be significantly high compared to the US market. The other striking difference in India is that the pension funds do not participate in the mutual funds market. They are required to invest mainly in the government securities. This could be one of the main reasons for poor penetration

[4]Except for the high net worth clients through wealth management service.

of mutual funds into the household savings. Given that pension funds or large institutional investments are not the major players in the Indian mutual funds market, the advisory market is restricted in its scope and hence it did not develop as a proper fee based activity where advisors need not depend purely on the entry loads as there would have been demand for their other related services (like in many developed markets). In summary, this background highlights that the mutual funds market in India is mainly a sellers market and such an environment with lax regulation and low financial literacy has the potential for value destruction by financial advisors.

3 Testable Hypotheses and Research Methodology

In this section we develop several hypotheses that link the regulatory change to fund flows, fund expenses and fund performance. Fund flows reflect investors actions in the pre and post entry-load transparency regime. Fund expenses and fund performance reflect fund managers reaction to both regulatory change and investors' actions. Our hypotheses discussion is followed by a separate subsection on various econometric methods used to test our stated hypotheses.

3.1 Testable Hypotheses

3.1.1 *Investor sophistication, entry-load transparency regulation, and fund flows*

Investors' interest or disinterest on a particular mutual fund is reflected through the direction of fund flows and they are mainly guided by their information content and the corresponding search costs to acquire information (Sirri and Tufano, 1998; and Hortascu and Syverson, 2004). Existing literature on fund flows establishes a positive performance (recent) and fund flow relationship: *better performance followed by better flows and vice verse.* However, Sirri and Tufano (1998) argue that performance-flow relationship is most "potent" when there isn't costly search. This implies that such positive relationship is more visible in competitive markets with sophisticated investors who incur relatively lower search costs. In other words, the significance of positive relationship is a function of investor sophistication and market development. Hence in markets like India, that are in their early stages of development, with relatively less investor sophistication, the general performance-flow relationship should be less significant compared to developed markets like the US.

Within Indian mutual funds market, funds where investors pay less search costs (for example, no-load funds) should exhibit stronger positive performance-flow relationship compared to funds where investors pay more search costs (for example, load funds). This relationship holds because load funds are mainly "sold" to investors (by the marketing effort of AMCs) and no-load funds are mainly "bought" by investors (by using their information content). It is reasonable to assume

that sophisticated investors would go for no-load funds and hence no-load fund should exhibit relatively stronger performance-flow relationship compared to load funds.

In the post-entry load transparency environment, with lack of direct incentives, the sellers of mutual funds will be demotivated to sell. Hence, if financial advisors drive the mutual funds market then such sellers market should collapse in the post-entry load transparency regime. This implies that fund flows in the post-entry load transparency regime should be significantly lower compared to pre-entry load transparency regime. Also, the disappearance of sellers market should coincide with reduction of unsophisticated investors investment in mutual funds. This implies that the average level of investor sophistication should improve in the post-entry load transparency regime. Hence, performance flow relationship should improve in the post-entry load transparency regime. The above arguments can be narrowed down into the following testable hypotheses.

H1: *The general relationship between recent fund performance and fund flows should be insignificant in the Indian mutual funds market.*

H2: *In the pre-entry load transparency regime, no-entry load funds' flows should be more sensitive to performance compared to entry load funds.*

H3: *The performance flow relationship should improve in the post-entry load transparency regime.*

H4: *Fund flows in the post-entry load transparency regime should be significantly lower compared to pre-entry load transparency regime.*

3.1.2 *Mutual funds competition and fund performance*

The regulatory change may not only change investors' interest but also mutual fund companies approach towards positioning their funds (for better fund inflows). The dimensions on which mutual funds compete with each other are through their prices and their quality. Price competition is mainly reflected through the price paid by investors to purchase a mutual fund. Hence, fund expense reflects pricing strategy of a given mutual fund. Quality is reflected through return received by investors. Hence, fund performance reflects fund quality of a given mutual fund. Post-entry load transparency regime implies a lean and flat world for fund managers. Hence, in general, market quality should improve due to higher competition. It should be noted that if investors are not sophisticated and if they are not sensitive to price and quality improvements then fund managers may not have any incentives to be competitive. This implies that, there is a possibility that nothing changes in terms of price and quality in the post-entry load transparency regime. However, it is important to note that, in the post-entry load transparency regime the reduction of selling effort by financial advisors ensures reduction of unsophisticated investors

participation. This implies that the average level of investor sophistication improves. In other words, the regulation has the potential to convert sellers market into buyers market. Hence, competition should improve in the post-entry load transparency regime. The improved competition can be reflected through better performance by mutual funds in the post-entry load transparency regime.

In the pre-entry load transparency regime, entry load fund are generally expensive compared to no-entry load funds. However, banning of entry loads implies that all actively managed funds will be at the same level playing field in terms of their selling costs. If fund managers charge any hidden costs to compensate for loss of revenue (due to reduced selling effort)then it should be reflected on their Management Expense Ratio (MER). Hence, any changes to the MERs between pre and post-entry load transparency regulation indicate fund managers reaction in terms of their pricing strategy. An increase in the average MER of the mutual funds in the post-entry load transparency regime indicates fowl play by AMCs. However, as discussed earlier, if the general level of investor sophistication improves then MER should remain unchanged in the post entry load transparency regime as, on average, improved competition mitigates fowl play strategy of mutual funds. These arguments can be represented through the following hypotheses.

H5: *The average expense ratio of entry load funds should be higher than no-entry load funds.*

H6: *Fund performance, on average, should improve in the post-entry load transparency regime.*

H7: *MER, on average, should remain unchanged in the post-entry load transparency regime.*

3.1.3 *Emerging markets, family business groups and certification hypothesis*

The unique institutional environment in India warrants few additional hypotheses on mutual fund expenses and performance. India like several other emerging economies is dominated by family controlled business groups (see Khanna and Yafeh, 2005). One unique feature about Indian mutual fund market is that 8 out of 40 AMCs are promoted by family controlled Indian business groups. However, in terms of Assets Under Management (AUM) their collective market share (as on end of January 2010) is more than 50% of the total Indian mutual fund industry AUM. Strategy and finance literature (see Khanna and Palepu (2000)) assert that groups by filling the institutional voids that are associated with less developed economies (through their internal network) can provide extra value compared to a similar standalone firm in the same environment. And such group affiliation is highly regarded as a certification of value by investors and they pay a premium to acquire group affiliated firms (compared to similar standalone firms). Apart from that, these family business groups are old and well established household names in India. They sell products ranging from sophisticated automobiles and software programs to daily necessities like salt and soaps. Given that mutual funds are relatively complex financial products

for unsophisticated investors, mutual fund affiliation to large and popular business groups may be one of the guiding forces while investing in a particular mutual fund. Following this logic, the price paid to a group affiliated mutual fund should be higher than a non-group affiliated mutual fund. Also, due to group's experience with real investments in the same economy, group affiliated funds should have better selection and timing skills. The closest resemblance in the US mutual funds market for such a phenomenon is the affiliation to large mutual fund families (See Nanda et.al., 2004). Chen and Lai (2010) found that such reputation based effects can reduce information asymmetry and better fund performance of the start up funds in the US mutual funds industry. We don't envisage any clear cut predictions for group affiliated mutual funds due to the regulatory changes. This discussion can be summarized through the following hypotheses.

H8: *On average, MER of a group affiliated mutual fund should be higher than non-group affiliated mutual funds.*

H9: *On average, fund performance of group affiliated mutual funds should be higher than non-group affiliated mutual funds.*

3.2 Research Methodology

We use several well established econometric models to test the nine hypotheses discussed in Section 3.1. We follow Sirri and Tufano's (1998) framework, with some enhancements, to examine performance-funds flow relationship. In addition to Sirri and Tufano (1998), we use Bergestresser et. al., (2004) framework, to examine the speed at which funds flow change, on a monthly basis, as a response to changes to fund performance. In order to measure fund performance with changing market conditions we apply a modified Ferson and Schadt (1996) model. Finally, to measure the determinants of fund expenses we use Malhotra and McLeod (1997)model. The models and the corresponding modifications are explained in detail in the following sub-sections.

3.2.1 *Sirri and Tufano (1998) Model*

The regression model used here follows Sirri and Tufano (1998) with extra variables which are also a point of interest in this study. The first model of plain Sirri and Tufano (1998) is given by:

$$\begin{aligned} GCF_t = \beta_0 + \beta_1 ln(TNA_{t-1}) + \beta_2 fee_{t-1} + \beta_3 SecFlow_t + \beta_4 Risk_{t-1} + \beta_5 March \\ + \beta_6 D_{BG} + \beta_7 LowPref + \beta_8 4thPref + \beta_9 3rdPref + \beta_{10} 2ndPref \\ + \beta_{11} HighPref + \beta_{12} D_{BR} + u_t \end{aligned} \tag{3.1}$$

where GCF_t is the month-t growth rate of net new money for the fund = $(TNA_{i,t} - TNA_{i,t-1} * (1 + R_{i,t}))/(TNA_{i,t-1})$[5]; D_{BR} is the regime shift dummy which takes a value of unity for pre-entry load transparency regime and zero otherwise; D_{BG} is a dummy variable which takes a value of unity when the fund belongs to an AMC promoted by an Indian family business group; *March* is a dummy variable that takes a value of unity when month t is March or zero otherwise[6]; fee_{t-1} is Management Expense Ratio (MER) of the fund; $SecFlow_t$ is the growth rate in month t of net new money for the sample funds in the same investment category as fund p[7]; *LowPref* is the fifth or lowest performance quintile = $min[0.2, RANK_{t-1}]$[8]; *4thPerf* is the fourth performance quintile = $min[0.2, RANK_{t-1} - LowPerf]$; *3rdPerf* is the third performance quintile = $min[0.2, RANK_{t-1} - LowPerf - 4thPerf]$; *2ndPerf* is the second performance quintile = $min[0.2, RANK_{t-1} - LowPerf - 4thPerf - 3rdPerf]$; HighPerf is the highest performance quintile = $min[0.2, RANK_{t-1} - LowPerf - 4thPerf - 3rdPerf - 2ndPerf]$[9].

Based on the evidence from U.S. mutual funds, as reported by Sirri and Tufano (1998), one should expect a positive flow-performance relationship - for example, here $\beta_{11} > \beta_{10} > \beta_9 > \beta_8 > \beta_7$. However, as per H1 of our paper, lack of sensitivity of the investor implies that there should be no significant relationship between fund flows and fund performance. Our Hypothesis H3 predicts that, in the post-entry load transparency regime the performance-flow relationship should be significant and positive. Also, as per our H2, in the pre-entry load transparency regime, entry load funds should have higher fund flows compared to no-entry load funds.

A variation of model (3.1) aggregates the middle three performance quintiles into a single fractional rank, called *MidPref*. The purpose of this alternative is to isolate the highest and lowest quintiles. This is done purely for robustness.

$$GCF_t = \beta_0 + \beta_1 ln(TNA_{t-1}) + \beta_2 fee_{t-1} + \beta_3 SecFlow_t + \beta_4 Risk_{t-1} + \beta_5 March + \beta_6 D_{BG} + \beta_7 LowPref + \beta_8 MidPref + \beta_9 HighPref + \beta_{10} D_{BR} + u_t \quad (3.2)$$

The second model of plain Sirri and Tufano (1998) that includes a dummy variable D_{EL} for testing H2, which takes a value of unity for funds that charge an entry load or zero otherwise, is

[5] $TNA_{i,t}$, is fund i's total net assets (size) at the end of month t and $R_{i,t}$ is the raw return of fund i in month t.

[6] During our talks with financial advisors we came to know that the collections during March month (financial year ending in India) are abnormally high compared to other months. Hence, we decided to control for the March month effect.

[7] The fund investment categories in the sample include diversified, equity exchange traded, equity linked savings scheme, sector funds and specialty funds.

[8] $RANK_t$: percentile performance based on its month-t raw return relative to other funds in that year and in that fund's category; it ranges from zero to one.

[9] To accommodate nonlinear returns, each fund is ranked relative to other funds in the same investment objective category. Each fund is assigned a fractional rank within quintiles: quintile 1 represents the worst performers and quintile 5 represents the best performers in the prior month. The performance measure is lagged to allow investors time to compare funds.

given by:

$$GCF_t = \beta_0 + \beta_1 ln(TNA_{t-1}) + \beta_2 fee_{t-1} + \beta_3 SecFlow_t + \beta_4 Risk_{t-1} + \beta_5 March + \beta_6 D_{BG} + \beta_7 LowPref + \beta_8 4thPref + \beta_9 3rdPref + \beta_{10} 2ndPref + \beta_{11} HighPref + \beta_{12} D_{EL} + u_t \quad (3.3)$$

Similar to model (3.2), the middle three quintiles in model (3.3) are aggregated to form a single fractional rank MidPref. This model equation is given by:

$$GCF_t = \beta_0 + \beta_1 ln(TNA_{t-1}) + \beta_2 fee_{t-1} + \beta_3 SecFlow_t + \beta_4 Risk_{t-1} + \beta_5 March + \beta_6 D_{BG} + \beta_7 LowPref + \beta_8 MidPref + \beta_9 HighPref + \beta_{10} D_{EL} + u_t \quad (3.4)$$

Sirri and Tufano (1998) Model with interaction variables

The plain Sirri and Tufano (1998) model is re-represented as follows to capture the incremental coefficient effects for the main variable in question, D_{BR}.

$$GCF_t = \beta_0 + \beta_1 fee_{t-1} + \beta_{1\triangle} D_{BR} * fee_{t-1} + \beta_2 SecFlow_t + \beta_3 Risk_{t-1} + \beta_4 Size + \beta_5 Age + \beta_6 March + \beta_7 D_{BG} + \beta_8 LowPref + \beta_{8\triangle} D_{BR} * LowPref + \beta_9 4thPref + \beta_{9\triangle} D_{BR} * 4thPref + \beta_{10} 3rdPref + \beta_{10\triangle} D_{BR} * 3rdPref + \beta_{11} 2ndPref + \beta_{11\triangle} D_{BR} * 2ndPref + \beta_{12} HighPref \beta_{12\triangle} D_{BR} * HighPref + \beta_{13} D_{BR} + u_t \quad (3.5)$$

In model (3.5), the interaction terms involving the regime shift dummy D_{BR} capture incremental coefficient effects for the main variable in question. For example, coefficient $\beta_{4\triangle}$ estimates the incremental impact of lagged fees on fund flows before and after the regime shift.

A parsimonious version of model (3.5) aggregates the middle three performance quintiles into a single fractional rank, called *MidPref*. The purpose of this alternative is to isolate the highest and lowest quintiles.

$$GCF_t = \beta_0 + \beta_1 fee_{t-1} + \beta_{1\triangle} D_{BR} * fee_{t-1} + \beta_2 SecFlow_t + \beta_3 Risk_{t-1} + \beta_4 Size + \beta_5 Age + \beta_6 March + \beta_7 D_{BG} + \beta_8 LowPref + \beta_{8\triangle} D_{BR} * LowPref + \beta_9 MidPref + \beta_{9\triangle} D_{BR} * MidPref + \beta_{10} HighPref \beta_{10\triangle} D_{BR} * HighPref + \beta_{11} D_{BR} + u_t \quad (3.6)$$

Another variation of Sirri and Tufano (1998) Model distinguishes the load versus no-load funds. The dummy variable D_{EL}, which takes a value of unity for funds that charge an entry fee and

zero otherwise, is included in the model and interacted with expenses and past performance ranks. Similar to the earlier regime shift model, here also we specify two version of this model:

$$\begin{aligned} GCF_t = \beta_0 &+ \beta_1 fee_{t-1} + \beta_{1\triangle} D_{EL} * fee_{t-1} + \beta_2 SecFlow_t + \beta_3 Risk_{t-1} + \beta_4 Size \\ &+ \beta_5 Age + \beta_6 March + \beta_7 D_{BG} + \beta_8 LowPref + \beta_{8\triangle} D_{EL} * LowPref \\ &+ \beta_9 4thPref + \beta_{9\triangle} D_{EL} * 4thPref + \beta_{10} 3rdPref + \beta_{10\triangle} D_{EL} * 3rdPref \\ &+ \beta_{11} 2ndPref + \beta_{11\triangle} D_{EL} * 2ndPref + \beta_{12} HighPref \beta_{12\triangle} D_{EL} * HighPref \\ &+ \beta_{13} D_{EL} + u_t \end{aligned} \tag{3.7}$$

$$\begin{aligned} GCF_t = \beta_0 &+ \beta_1 fee_{t-1} + \beta_{1\triangle} D_{EL} * fee_{t-1} + \beta_2 SecFlow_t + \beta_3 Risk_{t-1} + \beta_4 Size \\ &+ \beta_5 Age + \beta_6 March + \beta_7 D_{BG} + \beta_8 LowPref + \beta_{8\triangle} D_{EL} * LowPref \\ &+ \beta_9 MidPref + \beta_{9\triangle} D_{EL} * MidPref + \beta_{10} HighPref \beta_{10\triangle} D_{EL} * HighPref \\ &+ \beta_{11} D_{EL} + u_t \end{aligned} \tag{3.8}$$

In model (3.7), the interaction terms involving Entry load dummy D_{EL}, capture the incremental coefficient effects for the main variable in question. Since entry loads are considered to be a form of incentive (commission) to mutual fund advisors, it is expected that entry load schemes would enjoy more flows compared to no-entry load schemes because of higher selling effort on part of the mutual fund advisors. Banning of entry loads removes the incentive for distributors to actively sell schemes and therefore post-entry load transparency regime, the flows of both entry and no-entry schemes are expected to be similar.

3.2.2 *Bergstresser et. al., (2004) Velocity Model*

Sirri and Tufano (1998) model measures the sensitivity of performance-flow relationship. However, it doesn't measure how quickly mutual fund flows respond to change in performance. Given that the entry load transparency regulation is just one year old observing fund flows and performance at monthly frequencies would be more robust. The real impact can be captured better by using month by month comparisons that are difficult to capture using Sirri and Tufano (1998) model. Bergstresser et. al., (2004) propose a model (called Velocity model) to understand the speed of adjustment to performance data calculated over different time horizons. The Velocity model is given by:

$$GCF_{i,t+m} = \beta_{i,m} + \beta_{i,m}(R_{i,t-m}) + COVARIATES + u_{i,m} \tag{3.9}$$

where $GCF_{i,t+m}$ is the GCF_t is the growth rate of net new money for the fund i in the next m months given by $(TNA_{i,t+m} - TNA_{i,t} * (1 + R_{i,t-m}))/(TNA_{i,t})$; t is the current month and m is the horizon under consideration; $R_{i,t-m}$ is the raw return of fund i over the past m months; and COVARIATES is a list of control variables used in the regression, they include the Size and age of the AMC and the fund, the no. of years of experience of the fund manager, the MER of the fund, entry and exit load (if any) charged by the fund.

The above model is run on the full sample, sub-samples with only entry load schemes, only no entry load schemes, and also for period before the regime shift and after. As per our H3, we expect the sensitivity of fund flows to performance should improve in the post-entry load transparency regime.

3.2.3 *Ferson and Schadt (1996) Model*[10]

The basic Ferson and Schadt conditional Jensen model is specified as:

$$r_{t+1} = \alpha + \delta_1 r_{mt+1} + \delta_2^{'}(z_t r_{mt+1}) + \varepsilon_{t+1} \tag{3.10}$$

where r_{t+1} is the excess return of the fund portfolio over the risk-free rate of return for the month $t+1$; Z_t is the vector of instruments for public information at time t; $z_t = Z_t - E(Z)$ is a vector of the deviations of the information variables from their expected values and r_{mt+1} is the excess return of the market portfolio. After including dummy variables for regime shift (D_{BR}), where D_{BR} takes a value of unity for the period before entry load transparency regulation and zero otherwise; and Business group AMCs (D_{BG}), where D_{BG} takes a value of unity for AMCs promoted by large Business groups and zero otherswise, Ferson and Schadt conditional Jensen model is represented as:

$$r_{t+1} = \alpha + \alpha_{BR} D_{BR} + \beta_{BG} D_{BG} + \delta_1 r_{mt+1} + \delta_2^{'}(z_t r_{mt+1}) + \varepsilon_{t+1} \tag{3.11}$$

Similarly, a conditional form of Treynor and Mazuy's (1996) market timing model and Henriksson and Merton (1981) model can be represented as follows respectively.

$$r_{t+1} = \alpha + \alpha_{BR} D_{BR} + \beta_{BG} D_{BG} + \delta_1 r_{mt+1} + \delta_2^{'}(z_t r_{mt+1}) + \gamma(r_{mt+1}^2) + \varepsilon_{t+1} \tag{3.12}$$

$$r_{t+1} = \alpha + \alpha_{BR} D_{BR} + \beta_{BG} D_{BG} + \delta_1 r_{mt+1} + \delta_2^{'}(z_t r_{mt+1}) + \gamma(r_{mt+1}^{+}) + \varepsilon_{t+1} \tag{3.13}$$

[10] A recent paper by Jha et.al.(2009) reports that Christopherson et. al. (1998)model has less bias compared to Ferson and Schadt (1996)while estimating conditional alphas.We find no qualitative differences between the two estimates. For convinience and simiplicity we only report Ferson and Schadt model and estimates in this version of the paper.

The hypothesis H7 predicts that $\alpha_{BR} > 0$.

3.2.4 *Malhotra and McLeod (1997) Model*

The Malhotra and McLeod (1997) model will be used to identify the determinants of mutual funds expenses. The dependent variable, management expense ratio (MER), is available on a monthly basis. MER is regressed against a range of variables identified in the literature. The two variants of the model that will be used to test our hypotheses are follows:

$$\begin{aligned} MER_p = \phi_0 + \phi_1 Return_{p,t-1} + \phi_2 Risk_{p,t-1} + \phi_3 Growth_p + \phi_4 Size_p \\ + \phi_5 Age_p + \phi_6 D_{BG} + \phi_7 D_{BR} + \varepsilon_p \end{aligned} \tag{3.14}$$

$$\begin{aligned} MER_p = \phi_0 + \phi_1 Return_{p,t-1} + \phi_2 Risk_{p,t-1} + \phi_3 Growth_p + \phi_4 Size_p \\ + \phi_5 Age_p + \phi_6 D_{BG} + \phi_7 D_{EL} + \varepsilon_p \end{aligned} \tag{3.15}$$

where $Return_{p,t-1}$ is the one-month raw return over the previous month; $Risk_{p,t-1}$ is the standard deviation of the returns; $Growth_p$ is the natural log of the ratio of total net assets at time t over total net assets at time t-1; $Size_p$ is the natural log of total net assets at the end of prior month; Age_p is the number of years the fund has been in operation; D_{BG} takes the value of unity for AMCs that are part of Business groups or zero otherwise. D_{BR} divides the sample into before and after entry load removal periods and D_{EL} is equal to unity for schemes that charge an Entry load fees or zero otherwise. In model (3.14), the hypothesis H7 predicts that ϕ_7 should be insignificant and H5 predicts that, in model (3.15) $\phi_7 < 0$.

4 Data

The primary source of data for this study is sourced from ACE Mutual Fund (ACEMF) database provided by Accord Fintech Pvt Ltd.[11]The database includes information about mutual fund schemes that existed during the period August 2005 to June 2010. Among others, ACE MF has data on

1. Month end Net Asset Value (NAV) of funds from August 2005 to till date.
2. Month end Total Net Asset value (TNA) in rupees for each fund's portfolio.
3. Management expense ratios.

[11]We also use Alpha database of Centre for Monitoring Indian Economy (CMIE) for cross verification of ACE MF database. Also many AMCs official websites are used for verifying fund characteristics.

4. Fund characteristics like New Fund Offer (NFO) close date of the scheme, fund type (equity/ debt/ hybrid), objective category, plan (dividend / growth), Fund manager and his experience and, minimum investment amount.

5. AMC characteristics like age, date of inception and Month end Asset under Management (AUM).

We find continuous data for 296 open-ended equity growth funds that belong to 36 AMCs for the period August 2005 to June 2010. The remaining 4 AMCs data for open-end equity growth funds is not available in ACEMF.

To measure conditional performance, we collect data for a range of macroeconomic variables. Consistent with prior literature (Ferson and Schadt, 1996), the public information variables used in the study include short-term treasury rate proxied by short-term Annual Redemption yield of Government of India Securities (source: Reserve Bank of India); term-structure measure given by difference between the short and long-term Annual Redemption yield of Government of India Securities (source: Reserve Bank of India); Dividend Yield (DY) of benchmark index, given by the dividend yield of BSE 100 index during the sample period. The benchmark index returns and dividend yields are sourced from Prowess database of CMIE.

4.1 Descriptive Statistics

Table 1 reports sample statistics of our dataset. As reported in the table, there are 269 open-ended equity growth mutual fund schemes that belong to 36 AMCs.The average year ending (2009) AUMs of AMCs indicate that Reliance Capital is the largest AMC followed by Fortis (FIL fund) and Morgan Stanley.[12]The average entry load, exit load, and MER are 1.92%, 0.93%, and 2.15% respectively. Fund managers average years of experience in our sample is 12.5 years.

Table 2 reports uni-variate results of our variables of interest, namely, fund flows, fund performance, fund expenses and fund affiliation. The results are divided into four panels namely A, B, C, and D. The panels report means and mean difference test based t-values for fund flows, AUM, Expense ratio, month-end average returns, and average Jensen's alpha. Panel A divides the total sample as entry load schemes and no entry load schemes. Whereas panel B divides the total sample into before and after entry load transparency regimes. Panel C reports only group affiliated mutual fund schemes for before and after entry load transparency regime periods. Panel D reports non-group affiliated mutual fund schemes for before and after entry load transparency regime periods. Panel A indicates that fund flows and AUM are significantly high for entry load schemes compared to no entry load schemes. This indicates that financial advisors

[12]BIRLA SUNLIFE, ESCORTS, FORTIS, KOTAK MAHINDRA, RELIACE CAPITAL, SUNDARAM, SAHARA, and TATA are identified as AMCs promoted by Indian family business groups.

induced schemes are larger and attract higher flows. Also, entry load funds have significantly higher MERs compared to no-entry load funds. The average expense ratio of the entry load schemes is 2.2% compared to 1.25% for the no entry load schemes. This is consistent with H5. Interestingly there is no significant difference in the fund returns. On the contrary, the Jensen's alpha, the captures abnormal return of funds, indicate that no-entry load funds not only have a positive alpha but also, on average, they have significantly higher alpha than entry load funds. This highlights why entry load transparency regulation is warranted. The higher costs and lower performance of entry load funds clearly highlight the exploitation of both fund managers and financial advisors.

Panel B reports a very dramatic result. The average growth rate of fund flows after the entry load transparency regulation is almost 0% compared to 27.3% before the entry load transparency regime. This overwhelming response indicates that the breaks applied by SEBI has worked. Financial advisors have literally stopped selling new mutual fund schemes in the post-entry load transparency regime. Although this evidence looks quite alarming it is exactly what SEBI expected to achieve. The hyper active growth rate has drastically reduced. This evidence is consistent with our H4 hypothesis. The average AUM has increased in the post-entry load transparency regime compared to pre-entry load transparency regime. Although this result looks puzzling, improved market conditions in the year 2009-2010 might have lead to an increase in the market value of the portfolios. The other puzzling result is that MER in the post entry load transparency regime is higher than pre-entry transparency regime. This indicates that fund mangers are trying to offset the loss due to reduce flows by increasing their fee. However, due to the univariate nature of these results we draw conclusion only after more robust multi-variate analysis.

Panels C that reports only business group affiliated mutual funds sub-sample indicates that business group affiliated mutual fund characteristics are not significantly different with the total sample as reported in Panel B. Similarly, Panel D that reports the sub-sample of non-group affiliated mutual funds reports results are also similar to Panel B. However, the value of AUM for non-group affiliated mutual fund schemes do not increase in the post-entry load transparency regime. This indicates that the average quality of group affiliated funds investments are better in the post-entry load transparency regime.

5 Results

5.1 Performance - flow sensitivity analysis

The results in this section focus on the relationship between fund flows and recent past fund performance. The objective of these tests, as stated in Hypotheses H1 to H4, is to discern whether

investors respond to certain characteristics (past year returns and MERs, respectively) when purchasing funds. Investor sensitivity is expected to capture the degree of investor sophistication. The results of pooled cross sectional time series regression analysis based on regression equations (1) to (8) are reported in eight columns in Table 3.

The baseline estimates are reported in Columns from (A) to (D). Contrary to Sirri and Tufano (1998) the estimates indicate that the relationship between past performance and fund flows is insignificant in the Indian mutual funds market. This result is consistent with our H1. This indicates that Indian mutual fund investors are not sensitive to fund past performance. This result signifies the relative unsophistication of Indian investors compared to the US counter parts. Fund size is negatively associated with fund flow. This result is consistent with Chevalier and Ellison (1997) and Sirri and Tufano's (1998): Larger funds loose out after reaching a critical size. The entry load dummy is positive and significant. This indicates that funds that charge entry loads receive higher inflows. It indicates that sellers dominate in the mutual funds market. Our regime dummy is also positive and significant. The regime dummy takes value 1 (0) for the pre (post)- entry load transparency regime. Hence, it indicates that the growth rate of fund flows in the post-entry load transparency regime is significantly lower than pre-entry load transparency regime. This result is consistent with our H4: after controlling for other factors, fund flows decrease when entry loads are banned. The incremental coefficient estimates for the performance and fees variables are reported in columns E to H. The results based on incremental coefficients are similar to the base case estimates. The only difference is that in Column G the incremental coefficient of expenses is significant and positive. This indicates that entry load fund flows are quite sensitive to fund expenses. Funds that incur more expenses have higher flows. This evidence further supports the role of entry loads on fund flows.

Table 4 reports results based on the Bergstresser et.al., (2004)'s velocity model. The objective of this analysis is to measure how quickly mutual fund flows respond to change in performance. This analysis is important to us as we have data for only 11 months after post-entry load transparency regulation. Sirri and Tufano (1998) uses yearly observation and hence quite coarse to capture sensitivities within a year. Table 4 reports the relationship between change in fund flows to the corresponding change in fund performance at monthly horizons. For instance, the first row reports one month horizon and the second row reports at two months horizon. Likewise, it continues until last row that reports over one year horizon. The results indicate that fund flow sensitivity is quite high for no-entry load funds compared to entry load funds. This supports our conjecture that more sophisticated investors invest in no-entry load funds and they are "bought" and not "sold". This is consistent with H2. The last column that reports the results for the post-entry load transparency regime period shows that funds flow sensitivity for fund past performance is more during post entry-load transparency regime. The past returns

coefficient is significant for all time horizons. However, it is significant only for 2 months and 3 months horizon during pre-entry load transparency regime. This result is consistent with our H3: the performance sensitivity is higher in the post-entry load transparency regime compared to pre-entry load transparency regime. We attribute this to improvement in the average degree of investor sophistication (due to the reduction of unsophisticated investors whose flows are mainly driven by selling effort through entry loads).

5.2 The determinants of mutual fund expenses

Table 5 reports results based on mutual fund expenses analysis. Among the three columns in Table 5, the first two columns report results for all funds and for the total time period. The next two columns report for before and after entry load transparency regulation. Our results, contrary to Malkiel (1995) and Malhotra and McLeod (1997)results, indicate that higher risk and larger funds incur higher expenses. However, older funds incur less expenses. The size based result indicate that scale economics are not prevalent in our sample Indian mutual funds. The entry load dummy is positive and significant. This indicates that entry load funds are more expensive than no-entry load funds. This is consistent with H5. Our regime dummy is not significant. This indicates that the average MER remained unchanged in the post-entry load transparency regime. This result is consistent with our H7. The results based on separate regressions for before and after regime periods, reported in Columns three and four respectively, indicate that the positive relationship between risk and expenses disappears in the post-entry load transparency regime. The business group dummy is positive and significant in all regression models. This indicates that mutual funds affiliated to Indian business groups charge higher expenses compared to non-business group affiliated mutual funds. This result is consistent with our hypothesis H8: groups affiliated mutual funds are sold at a premium.

5.3 Fund performance analysis

We test our H6 through fund performance analysis. We use conditional performance models to control for changing market conditions. Given that we have only one year after regulation controlling for market conditions is quite critical for any meaningful inferences. The first three columns report results based on conditional Jensen's Alpha measure. The next three columns report results based on conditional Treynor-Mazuay model, and the last three columns reports results based on conditional Henriksson-Merton model. Each set report results for all schemes, entry load and no-entry load schemes separately. Our main variable of interest, regime dummy, that takes value 1 (0) for pre (post)-entry load transparency regime, is negative and significant. This indicates that fund performance is better in the post-entry load transparency regime compared to pre-entry load transparency regime. This is consistent with H6: the average fund quality

improves in the post-entry load transparency regime. The other significant results are as follows. Group affiliated fund schemes, on average, perform, better than non-group affiliated schemes. This is consistent with our H9. This result is similar to fund family affiliation results reported by Chen and Lai (2010). When the sample is divided into entry load schemes and non-entry load schemes, we find evidence that entry load funds have poor selection skills and timing skills. This result is similar to Friesen and Sapp (2007). This result again highlights the dead weight of entry loads on fund performance.

6 Concluding remarks

Financial markets, in their early stages of development, are featured by unsophisticated investors, exploitation of intermediaries for personal gains, and lax in regulation. We are argue that these conditions facilitate sellers market where investors pay high and inefficient prices for financial services. A unique regulation introduced by Indian financial markets regulator-SEBI aims to transform the mutual funds market in India from sellers market to a more efficient buyers market. India, having the features of the above described early stages financial market, provides a nice setting to examine what determines the market for financial products. Our central hypothesis is that a financial product is sold when investors are not sophisticated and when there are significant incentives for selling these products. Hence, any regulation that aims at discouraging both incentives for selling and participation by unsophisticated investors can convert the market from sellers to buyers market. In other words, a financial product sold or bought depends on the degree of investor sophistication and incentives associated with selling the product.

SEBI, effective from 1st August 2009, banned deduction of entry loads at source. As per SEBI's statement, this was primarily done to empower investors in their investment decision as SEBI believes that financial advisors in India sell mutual funds for other than investor's interest. This exogenous regulation provides a setting to test how investors and mutual funds react to changes to the market structure. If market changes from sellers to buyers market then we expect decrease in the selling effort of the financial advisors (which is observed through fund flows) and improvement in the market competition in terms of price and quality of the products (which is observed through fund expenses and fund performance).

Using a sample of 269 open ended equity growth mutual funds for the period between August 2005 to June 2010, we test the relationship between fund flows, fund expenses, and fund performance for before and after entry load transparency regime periods. Our main results are: 1. Fund flows significantly drop in the post-entry load transparency regime. This indicates that financial advisors are not active after the regulation; 2. Fund flow sensitivity to fund performance improves in the post-entry load transparency regime. This indicates that the average level of investor sophistication improves after the regulation due to reduction of unsophisticated investor

participation; 3. Fund expenses remain unchanged in the post-entry load transparency regime. This indicates that, after the regulation, fund managers are not trying to compensate the loss of decrease in fund flows through other types of expenses.; and 4. Fund performance improves in the post-entry load transparency regime. This indicates that the market quality has improved after the regulation. These results lead us to conclude that SEBI achieved desired result through entry load transparency regulation. Also, investor sophistication and the incentives to selling mutual funds determine whether mutual funds are sold or bought.

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Table 1: Descriptive statistics of Asset Management Companies (AMCs) in sample

This table presents information on our sample of 269 open-ended balanced equity mutual fund schemes for the period August 2005 to June 2010. The table reports names of 36 Asset Management Companies (AMCs); Age of each AMC; No. of schemes taken in the sample; Fund Managers' average experience in years. Column 4 reports the average assets under management in crores (INR) (where one crore equals to 10 million; one USD is approximately 45 INR) for our sample schemes under each AMC. The table also reports the avreage entry and exit loads (if any) that were charged by the schemes; and the average Management Expense ratio for each AMC as of 2009.

*In the last row, "No. of Schemes" and "AUM of AMCs" are the sum of their respective columns; all other values are averages of their respective columns.

AMC Name	AMC age (yrs.)	No. of schemes in Sample	Avg. Exp. of Fund Manager (yrs.)	AUM in Sample (Cr.)	Avg. Entry Load in Sample (%)	Avg. Exit Load in Sample(%)	Avg. Expense Ratio in Sample (%)
AIG Global	4	2.50	8.00	496.39	2.25	1.00	2.30
Baroda Pioneer	18	1	16.00	9.77	1.50	1.00	2.17
Benchmark	10	6	10.00	317.55	1.00	0.25	0.81
Bharti AXA Investment	3	2	14.00	41.90	0.00	0.50	2.44
Birla Sunlife	16	19	15.32	273.90	2.17	0.95	2.31
Canara Robeco	17	5	10.00	54.50	1.94	0.60	1.99
DBS Cholamandalam	14	8	11.00	21.76	2.28	0.94	2.42
Deutsche	8	3	12.00	83.81	2.25	1.50	2.39
DSP BlackRock Investment	14	7	18.57	884.42	2.25	0.86	2.05
Edelweiss	3	4	5.00	8.87	0.00	0.75	1.80
Escorts	15	5	6.00	3.07	2.25	0.80	2.50
FIL Fund	6	5	15.00	1415.63	2.25	0.80	2.06
Fortis Investment	7	6	5.00	127.54	2.29	0.83	2.48
Franklin Templeton	15	16	14.53	697.84	2.15	0.94	2.00
HDFC	11	11	14.09	913.38	2.25	0.55	1.92
HSBC Global	9	6	13.00	394.25	2.25	0.83	2.27
ICICI Prudential	17	16	13.67	560.79	2.15	0.84	2.11
IDFC	11	8	13.75	403.60	2.25	0.88	2.15
ING Investment	12	9	9.25	38.06	2.28	2.06	2.50
JM Financial	16	13	9.10	124.66	2.32	0.87	2.32
JPMorgan	3	3	17.00	478.15	2.25	1.00	2.29
Kotak Mahindra	16	9	14.00	314.65	2.25	0.22	1.94
LIC Mutual Fund	16	6	12.50	48.51	2.25	1.00	1.66
Mirae Global Investment	4	2	10.00	97.13	2.25	1.00	2.40
Morgan Stanley Investment	17	2	13.50	1176.44	2.25	0.50	2.20
Principal Pnb	19	9	14.33	163.93	2.09	1.14	2.24
Quantum	5	3	11.00	19.62	0.00	1.33	1.91
Reliance Capital	15	17	13.53	1638.14	2.30	0.71	1.92
Religare	5	8	12.75	71.95	2.25	0.88	2.33
Sahara	15	9	20.00	7.63	2.25	1.03	2.21
SBI Funds	18	9	8.00	366.12	2.13	0.92	2.29
Shinsei	3	1	15.00	20.33	0.00	1.00	2.50
Sundaram BNP Paribas	14	9	10.00	395.27	2.25	2.03	2.31
Tata	16	18	13.57	217.60	2.08	0.61	2.29
Taurus	17	6	14.00	42.28	2.25	1.67	2.13
UTI	7	6	17.67	378.10	2.25	0.67	1.91
Total / Average*	11.56	269	12.50	12307.52	1.92	0.93	2.15

Table 2: Univariate Analysis of Mutual Fund Schemes

The results in this table are reported in four Panels. Panel A divides the total sample into entry load and no entry load schemes. Panel B divides the total sample into before and after entry load transparency regime periods. Panel C reports for Business group affiliated AMC schemes for before and after entry load transparency periods. Finally, Panel D reports for Non-Business group affiliated AMC schemes for before and after entry load transparency periods. All panels report mean, standard deviation, no. of observations and t-value based on the mean difference test with un-equal variance. ***, **, * signifies confidence at 1%, 5%, and 10% levels respectively. Fund Flows represent the growth rate of net new money defined as $GCF_{i,t} = (TNA_{i,t} - TNA_{i,t-1} * (1 + R_{i,t}))/(TNA_{i,t-1})$ where $TNA_{i,t}$ is scheme i's total net assets at time t and $R_{i,t}$ is the raw return of scheme i at time t. "AUM" is the month-end $TNA_{i,t}$; Month-end return (%) is the return of the fund over the current month given by $((NAV_{i,t} - NAV_{i,t-1})/(NAV_{i,t-1})) * 100$, where $NAV_{i,t}$ is the Net Asset value of each unit of the scheme i at time t. The average α of schemes for each sample has also been reported below.

	PANEL A							PANEL B						
	Entry Schemes			No Entry Schemes				Before Regime			After Regime			
Variable Name	Mean	STDEV	N	Mean	STDEV	N	t-val	Mean	STDEV	N	Mean	STDEV	N	t-val
Flows	0.212	1.578	8790	0.205	2.732	774	2.01**	0.273	1.858	8014	0.002	0.137	1550	12.89***
AUM	452.626	834.628	9223	300.689	732.972	827	5.45***	425.180	794.090	8480	519.956	971.444	1570	-3.60***
Expense Ratio	2.208	0.333	9223	1.253	0.613	827	42.54***	2.132	0.441	8480	2.158	0.442	1570	-4.11***
Month-end Returns (%)	1.393	9.958	9223	1.658	9.599	827	-0.73	1.309	10.544	8480	2.060	5.299	1570	-4.24***
α	-0.038	0.587	9223	0.060	0.495	827	-1.869*	-0.034	0.567	8480	-0.013	0.638	1570	-0.643

	PANEL C							PANEL D						
	Business House AMCs - Before Regime			Business House AMCs - After Regime				Non Business House AMCs - Before Regime			Non Business House AMCs - After Regime			
Variable Name	Mean	STDEV	N	Mean	STDEV	N	t-val	Mean	STDEV	N	Mean	STDEV	N	t-val
Flows	0.221	1.681	4131	0.001	0.078	763	8.36***	0.333	2.055	3883	0.002	0.175	787	9.89***
AUM	501.201	910.628	4380	681.256	1211.437	775	-3.95***	344.470	639.515	4100	355.995	603.052	795	-0.49
Expense Ratio	2.191	0.361	4380	2.213	0.365	775	-4.01***	2.068	0.506	4100	2.093	0.499	795	-1.29
Month-end Returns (%)	1.419	10.280	4380	2.229	5.254	775	-3.31***	1.197	10.815	4100	1.813	5.316	795	-2.43**
α	0.061	0.496	4380	0.052	0.569	775	0.219	-0.139	0.619	4100	-0.092	0.830	795	-0.809

Table 3: Fund Flow Analysis of Mutual Fund Schemes

The table reports results to test the effect of relative performance, volatility of raw returns, schemes characteristics, fund-flow to category, entry load and regime shift on the growth rate of new money flows of the mutual fund schemes in the sample of 269 open-ended balanced equity mutual fund schemes. The table reports regression coefficients using growth rate of net new money as the dependent variable, which is defined as $GCF_(i,t) = (TNA_{i,t} - TNA_{i,t-1} * (1 + R_{i,t}))/(TNA_{i,t-1})$ where $TNA_{i,t}$ is scheme i's total net assets at time t and $R_{i,t}$ is the raw return of the scheme i in at time t. The independent variables include: log of fund i's total net assets in the prior month $ln(TNA_{t-1})$; the expense ratio of the schemes in the prior month $fees_{t-1}$; an interaction variable $D_{BR} * fees_{t-1}$; D_{BR} is a dummy variable which takes the value of unity for months before the regime shift (August 2009) or zero otherwise; an interaction variable $D_{EL} * fees_{t-1}$; D_{EL} is a dummy which takes the value of unity for schemes with Entry load or zero otherwise; the growth rate of net new money for all schemes in the same investment category ($SecFlow_{t-1}$); the volatility of the scheme's raw returns ($Risk_{t-1}$); the natural logarithm of total net assets (Size); the number of years the scheme has been in operation (Age); a dummy variable *March* which equals to unity when the observation month is March or zero otherwise, to control for comparatively higher fund flows during Indian Financial year end; a dummy variable D_{BG} for business house AMCs which takes a value of unity for AMCs that are part of famous Business houses in India or zero otherwise; and measures of fractional performance rank ($RANK_{(i,t-1)}$) of scheme i in the preceding month. Based on month-end raw returns, the scheme's fractional rank ($RANK_{(i,t)}$) represents its percentile performance relative to other funds belonging to the same investment objective category in the same period t and ranges from 0 to 1. The coefficients of fractional are estimated using a piecewise linear regression framework over five quintiles. For example, *LOWPREF*, the worst performing quintile, is defined as $Min(0.2, RANK_{t-1})$, the 2nd worst quintile, the 4th performance quintile is defined as $Min(0.2, RANK_{t-1} - LOWPREF)$ and so on, up to the best performing quintile, *HIGHPREF*. The coefficients on these piecewise decompositions of fractional ranks represent the slope of the performance-growth relationship over their range of sensitivity. *MIDPREF* represents the aggregate of the middle three performance quintiles. Interactions with D_{BR} and D_{EL} are included for each performance ranking variable from column E onwards. p-values are reported in the parenthesis beside the coefficient estimates and their significance is denoted as ***, *** and * for 1%, 5% and 10% respectively.

	(A)	(B)	(C)	(D)	(E)		(F)		(G)		(H)	
					Base Coeff	BR Coeff	Base Coeff	BR Coeff	Base Coeff	EL Coeff	Base Coeff	EL Coeff
Intercept	0.491	0.478	0.656	0.643	-0.180		-0.176		0.179		0.180	
	(0.002)***	(0.002)***	(0.000)***	(0.000)***	(0.538)		(0.544)		(0.278)		(0.274)	
$ln(TNA_{t-1})$	-0.104	-0.104	-0.107	-0.107								
	(0.000)***	(0.000)***	(0.000)***	(0.000)***								
$Fees_{t-1}$	-0.003	-0.004	-0.060	-0.061	0.014	-0.085	0.014	-0.087	-0.161	0.110	-0.150	0.084
	(0.936)	(0.905)	(0.120)	(0.110)	(0.881)	(0.394)	(0.876)	(0.382)	(0.001)***	(0.047)**	(0.001)***	(0.121)
$SecFlow_{t-1}$	0.002	0.002	0.002	0.002	0.003		0.003		0.003		0.003	
	(0.324)	(0.319)	(0.332)	(0.327)	(0.150)		(0.147)		(0.140)		(0.139)	
$Risk_{t-1}$	-0.008	-0.008	-0.009	-0.009	0.004		0.004		0.002		0.003	
	(0.404)	(0.404)	(0.377)	(0.377)	(0.718)		(0.709)		(0.847)		(0.793)	
Size					0.021		0.021		0.019		0.018	
					(0.005)***		(0.005)***		(0.011)**		(0.013)**	
Age					0.010		0.010		0.010		0.010	
					(0.014)**		(0.015)**		(0.009)***		(0.011)**	
March	-0.103	-0.103	-0.098	-0.098	-0.071		-0.071		-0.059		-0.059	
	(0.084)*	(0.084)*	(0.101)	(0.101)	(0.241)		(0.240)		(0.331)		(0.327)	
D_{BG}	-0.035	-0.035	-0.034	-0.034	-0.080		-0.079		-0.080		-0.078	
	(0.273)	(0.277)	(0.286)	(0.290)	(0.014)**		(0.015)**		(0.014)**		(0.016)**	
RANKS												
LowPref	0.318	0.532	0.320	0.528	0.001	-0.054	-0.081	0.286	0.957	-1.310	0.294	-0.184
	(0.535)	(0.223)	(0.533)	(0.227)	(0.999)	(0.969)	(0.940)	(0.808)	(0.273)	(0.146)	(0.689)	(0.805)
4thPerf	0.394		0.388		-0.138	0.567			-1.120	1.901		
	(0.296)		(0.304)		(0.885)	(0.585)			(0.150)	(0.032)**		
3rdPerf	0.136		0.132		0.070	0.014			0.575	-0.641		
	(0.711)		(0.717)		(0.940)	(0.989)			(0.450)	(0.461)		
2ndPerf	-0.051		-0.044		-0.0380	-0.043			0.261	-0.417		
	(0.890)		(0.906)		(0.968)	(0.966)			(0.735)	(0.636)		
MidPref		0.154		0.153			-0.020	0.152			0.002	0.146
		(0.105)		(0.107)			(0.935)	(0.560)			(0.991)	(0.516)
HighPref	-0.396	-0.563	-0.383	-0.543	0.345	-0.424	0.351	-0.611	-0.059	0.055	0.269	-0.566
	(0.356)	(0.124)	(0.374)	(0.138)	(0.756)	(0.725)	(0.709)	(0.550)	(0.946)	(0.957)	(0.720)	(0.510)
(D_{BR})	0.212	0.212				0.366		0.345				
	(0.000)***	(0.000)***				(0.221)		(0.244)				
(D_{EL})			0.191	0.191								
			(0.000)***	(0.000)***								
Adj-R Sqrd	2.50%	2.51%	2.49%	2.51%	0.67%		0.50%		0.40%		0.38%	
N	9564	9564	9564	9564	9564		9564		9564		9564	

Table 4: Fund Flow Velocity analysis of Mutual Fund Schemes

This table reports the average fund reaction time to performance changes. The regression equation used here is $F_{i,t+m} = a_{i,m} + b_{i,m} * (R_{i,t-m}) + COVARIATES + u_{i,m}$; where $F_{i,t+m}$ is the growth rate of net new money over a time horizon "m" (1, 2, 3, 6, 9 or 12 months). The COVARIATES included in the regression include, size of the AMC and scheme; age of the AMC and scheme; experience of the scheme fund manager in no. of years; expense ratio of the scheme; entry and exit loads (if any) charged by the scheme. p-values are reported in the parenthesis beside the coefficient estimates and their significance is denoted as ***, *** and * for 1%, 5% and 10% respectively.

Flow horizon Coefficients	All Schemes	Entry Schemes	No Entry Schemes	Before Regime	After Regime*
1 Month	0.662(0.291)	0.740(0.295)	1.607(0.041)**	1.832(0.165)	0.3619(0.000)***
2 Month	1.408(0.005)***	1.532(0.006)***	1.351(0.092)*	3.443(0.004)***	0.3697(0.000)***
3 Month	1.675(0.000)***	1.843(0.000)***	1.416(0.034)**	4.876(0.000)***	0.3916(0.000)***
6 Month	1.290(0.181)	1.543(0.145)	1.532(0.002)***	2.853(0.190)	0.7207(0.000)***
9 Month	-4.791(0.205)	-3.840(0.378)	1.240(0.006)***	4.204(0.452)	1.3573(0.106)
12 Month	-14.192(0.174)	-8.956(0.464)	1.114(0.004)***	17.753(0.248)	-0.2295(0.777)

*Note that the last value reported in "After Regime" column is for a 11 month horizon.

Table 5: Expense Analysis of Mutual Fund Schemes

The table reports the determinants of mutual fund expenses (management expense ratio). The results are reported for three sub-samples. First two columns report the Malhotra McLeod (1997) model with regime shift (D_{BR}) and Entry Load dummy (D_{EL}) respectively. Columns three and four report results by dividing the total sample into before and after entry load transparency regime periods respectively. The dependent variable is the scheme's Management Expense Ratio (MER) and independent variables includes raw return of prior month $Return_{t-1}$; the standard deviation of raw return $Risk_{t-1}$; the natural log of the ratio $TNA_{i,t}/TNA_{i,t-1}$ (Growth); the natural log of total net assets (Size); the no. of years the scheme has been in operation (Age); a dummy for Business group AMC's (D_{BG}) that takes a value of 1 when the AMC belongs to an Indian Business group or zero otherwise; the dummy for regime shift (D_{BR}) which takes the value of unity for months prior to legislation (August 2009) or zero otherwise; and the entry load dummy (D_{EL}) that takes a value of unity for entry load schemes during the pre-regime shift period or zero otherwise. p-values are reported in the parenthesis beside the coefficient estimates and their significance is denoted as ***, *** and * for 1%, 5% and 10% respectively.

Variable Name	All Schemes		Before Regime	After Regime
	(1)	(2)		
Intercept	1.83(0.000)***	1.645(0.000)***	1.113(0.000)***	2.044(0.000)***
$Return_{t-1}$	-0.001(0.069)*	0.000(0.276)	-0.001(0.020)**	0.004(0.065)**
$Risk_{t-1}$	0.023(0.000)***	0.019(0.000)***	0.015(0.000)***	0.004(0.513)
Growth	-0.005(0.532)	-0.004(0.536)	0.002(0.676)	0.202(0.043)**
Size	0.017(0.000)***	0.016(0.000)***	0.001(0.458)	0.011(0.065)*
Age	-0.007(0.000)***	-0.010(0.000)***	-0.007(0.000)***	-0.009(0.001)***
Business Group AMC (D_{BG})	0.130(0.000)***	0.115(0.000)***	0.090(0.000)***	0.121(0.000)***
Before Regime (D_{BR})	-0.012(0.337)			
Entry Load (D_{EL})		0.314(0.000)***	0.950(0.000)***	
Adj-R Sqrd	3.79%	12.39%	35.76%	2.83%
N	10050	10050	8480	1570

Table 6: Performance Analysis Analysis of Mutual Fund Schemes

This table reports regression estimates of conditional performance measures using Jensen's alpha, Treynor-Mazuy (TM) and Henriksson-Merton (HM) model. The information variables used are one-period lagged values of: short-term Annual Redemption yield of Government of India Securities (STR); Term Structure (TS) given by difference between the short and long-term Annual Redemption yield of Government of India Securities; Dividend Yield (DY) given by the dividend yield of BSE 100 index for the respective years; a dummy variable for *March* which takes a value of unity for March month or zero otherwise; a dummy variable D_{BG} for business group AMCs which takes a value of unity for AMCs that are affiliated to Indian Business groups or zero otherwise; and a dummy variable for regime shift (D_{BR}) which takes the value of unity for months prior to legislation (August 2009) or zero otherwise. The dependent variable is "r", the excess return of the scheme over the risk-free rate. p-values are reported in the parenthesis beside the coefficient estimates and their significance is denoted as ***, *** and * for 1%, 5% and 10% respectively.

Variable Name	Jensen's Alpha			TM Model			HM Model		
	All Schemes	Entry Schemes	No Entry Schemes	All Schemes	Entry Schemes	No Entry Schemes	All Schemes	Entry Schemes	No Entry Schemes
α	0.738	-0.119	0.090	0.742	-0.082	0.092	0.866	0.131	0.063
	(0.000)***	(0.036)**	(0.472)	(0.000)***	(0.170)	(0.489)	(0.000)***	(0.064)*	(0.703)
r_m	0.925	0.921	0.926	0.925	0.921	0.926	0.951	0.958	0.922
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
r_m^2				-0.000	-0.000	-0.000			
				(0.587)	(0.046)**	(0.954)			
r_m^+							-0.051	-0.073	0.008
							(0.000)***	(0.000)***	(0.803)
$r_m * STR$	0.314	0.541	-0.333	0.291	0.446	-0.340	0.071	0.181	-0.295
	(0.056)*	(0.002)***	(0.430)	(0.086)*	(0.014)**	(0.438)	(0.681)	(0.328)	(0.512)
$r_m * TS$	0.753	1.075	-0.029	0.707	0.888	-0.042	0.313	0.426	0.041
	(0.001)***	(0.000)***	(0.962)	(0.005)***	(0.001)***	(0.949)	(0.218)	(0.116)	(0.952)
$r_m * DY$	-0.035	-0.066	-0.043	-0.031	-0.050	-0.042	0.003	-0.010	-0.049
	(0.090)*	(0.002)***	(0.429)	(0.157)	(0.029)**	(0.468)	(0.895)	(0.662)	(0.410)
$r_m * March$	0.028	0.026	-0.013	0.028	0.026	-0.013	0.029	0.028	-0.013
	(0.060)*	(0.102)	(0.747)	(0.060)*	(0.095)*	(0.748)	(0.050)**	(0.076)*	(0.743)
D_{BG}	0.192	0.217	-0.119	0.192	0.216	-0.119	0.188	0.212	-0.119
	(0.006)***	(0.004)***	(0.544)	(0.006)***	(0.004)***	(0.543)	(0.007)***	(0.004)***	(0.544)
D_{BR}	-1.023			-1.016			-0.966		
	(0.000)***			(0.000)***			(0.000)***		
Adj-R Sqrd	87.60%	87.09%	92.71%	87.60%	87.08%	92.70%	87.64%	87.12%	92.70%
N	10050	9223	827	10050	9223	827	10050	9223	827